Surface water resources management along Hadejia River Basin, northwestern Nigeria

ABSTRACT

The current review has unveiled the spatial disparity of the surface water resources availability between the upstream and downstream of the Hadejia River Basin (HRB). The surface water resources are more abundant in the upstream areas of the basin. Although rainfall and temperature dynamics are identified as the major reason for these spatial variations, other important factors includethe differences in the geological formation and the land use changes. Furthermore, the differences in the geological formations between the upstream and downstream areas have further widened the disparities in the surface water resources available across the basin which are motivated by the differences in the rate of infiltration. The combined effects of these factors affect both spatial availability and the quality variation of the surface water resources. However, as per this review, there is no single integrated study reported to have aimed at addressing the problems of water resource excesses, deficiencies and/or pollution throughout the basin. To address the problem of water pollution, floods, and droughts, the current review recommends the use of riverbank filtration (RBF), aquifer recharge and recovery (ARR) and rainwater harvesting.

Keyword: Climate variability; Resources management; River Basin; Surface water